ROAD MOVEMENT CALCULATIONS

TIME, DISTANCE, AND RATE FORMULAS

TO FIND:

TIME:

DISTANCE (HOW FAR YOU ARE TRAVELING) IN MILES *TIMES* **60** *DIVIDED* BY YOUR "RATE OF MARCH" (HOW FAST YOU ARE GOING)

$$\textbf{TIME=}\ \frac{\text{Distance to travel in (miles) } \textbf{X 60}}{\text{Rate of march (MPH)}}\ \textbf{=}\ \text{Travel time in minutes}$$

DISTANCE:

MULTIPLY THE *RATE* BY THE *TIME* (IN MINUTES) AND THEN *DIVIDE* BY **60** TO CONVERT TO MPH/KPH

$$\frac{\text{RATE } \textbf{X} \text{ TIME}}{60}$$

RATE:

DIVIDE THE DISTANCE BY THE TIME (IN MINUTES), THEN *MULTIPLY* BY **60** TO CONVERT TO MPH/KPH **(ROUND UP)**

$$\textbf{RATE=}\ \frac{\text{DISTANCE}}{\text{TIME}}\ \textbf{X}\ \ \textbf{60}$$

ALWAYS ROUND UP FOR TIME,DISTANCE AND RATE FORMULAS

DENSITY FORMULA

$$\frac{\textbf{1760}}{\textbf{veh gap + avg veh length in yards}}$$ ← **ROUND** RATHER THAN ALWAYS ROUND UP

CALCULATING THE ***AVERAGE VEHICLE LENGTH IN YARDS*** :

STEP 1: Use TB 55-46-1 to find the length of vehicles. NOTE that all vehicle lengths are given in inches (note unions)

STEP 2: Add all vehicle lengths together

STEP 3: Divide by the number of vehicles

STEP 4: Divide the average length (given in inches) by 36 *(because there are 36 inches in 1 yard)* **(ROUND UP)**

TO FIND **DENSITY**:

1. Add the vehicle gap in yards to the average vehicle length in yards
2. Divide 1760 yards by total of vehicle gap and vehicle length in yards **(ROUND)**

PASS TIME FORMULA

$$\frac{\textbf{\# of vehicles X 60}}{\textbf{Density X Rate}}\ \textbf{+}\ \textbf{Time Gaps}$$

TO FIND **PASS TIME**:

1. Multiply the total number of Vehicles by 60 **(60 is a constant)**
2. Multiply the Density by the Rate
3. Divide (# of Vehicles times **60**) by (Density times Rate)
4. **ROUND UP** the answer and **ADD TIME GAPS**

ALWAYS ROUND UP FOR PASS TIME

ROAD MOVEMENT TABLE

1. Complete the **ETA** column **first**
2. Complete the **ETD** row **second**
3. Pass time is only added across the row with break (to get ETD)
4. Breaks are added to both, column **and** row

	ETA	+ break	+ pass time	=	ETD
(2) (1) SP		+	+	=	
+ break @ SP					
+ travel time					
=CP1		+	+	=	
+ break @ CP1					
+ travel time					
= CP2		+	+	=	
+ break @ CP2					
+ travel time					
=CP3		+	+	=	
+ break @ CP3					
+ travel time					
=CP4		+	+	=	
+ break @ CP4					
+ travel time					
=CP5		+	+	=	
+ break @ CP5					
+ travel time					
=CP6		+	+	=	
+ break @ CP6					
+ travel time					
=RP		+	+	=	